CLAIMS

1. Method for detecting a drop in the power received by an optical receiver (OR), for free-space optical telecommunications systems, and for identifying the cause of such a drop in the power received, the method including the step of obtaining a value of power concerning the desired signal (S_{data}) on the optical axis of the receiver and being characterized by the following steps:

obtaining at least two additional values of power (S_{-X}, S_{+X}; S_{-Y}, S_{+Y}) corresponding to areas (F_{-X}, F_{+X}; F_{-Y}, F_{+Y}) that are opposite to said optical axis; and

calculating at least one difference in power (ΔX, ΔY) between said at least two additional values of power.

2. Method according to claim 1, characterised in that , in the event of a drop in the power received, a difference in power greater than a predetermined value (e) or smaller than the negative of said predetermined value (-e) is indicative of a mechanical loss of alignment.

3. Method according to claim 2, characterised by the step of providing a tracking system for restoring mechanical alignment, said tracking system being responsive to the difference in power (ΔX, ΔY).

4. Method according to claim 1, characterised in that, in the event of a drop in the power received, a difference in power smaller than a predetermined value (e) is indicative of causes external to the telecommunications system.

5. Method according to claim 4, characterised by the step of controlling an automatic power control (ATPC) so as to increase the transmission power correspondingly.

6. Method according to any of the preceding claims, characterised in that the step of obtaining at least two additional values of power includes the step of obtaining four values of power (S_{-X}, S_{+X}; S_{-Y}, S_{+Y}) in four corresponding areas (F_{-X}, F_{+X}; F_{-Y}, F_{+Y}) equidistant from the optical axis and arranged in a cross or X-shaped configuration.

7. Method according to claim 6, characterised in that the step of calculating a difference in power (ΔX, ΔY) includes the step of calculating a first difference in power (ΔX) along an axis (X) that connects two first areas (F_{-X}, F_{+X}) and intersects the optical axis and a second difference in power (ΔY) along an axis that connects two second areas (F_{-Y}, F_{+Y}) and intersects the optical axis.

8. Optical receiver (OR) for free-space optical telecommunications systems capable of detecting a drop in the power received and of identifying the cause of said drop in the power received, the receiver including a first light detector (RX_{data}) for obtaining a value of power referred to the required signal (S_{data}) on the optical axis of the receiver and being characterised in that it also includes:

at least two additional light detectors for obtaining at least two corresponding additional values of power (S_{-X}, S_{+X}; S_{-Y}, S_{+Y}) in areas (F_{-X}, F_{+X}; F_{-Y}, F_{+Y}) that are opposite to said optical axis; and

processing means (FPGA) for calculating a difference in power (ΔX, ΔY) between said at least two additional values of power.

9. Receiver according to claim 8, characterised in that it also includes a tracking system for restoring mechanical alignment, said tracking system being responsive to the difference in power in such a way that a difference in power greater than a predetermined value (e) or smaller than the negative of said predetermined value (-e) is indicative of a loss of mechanical alignment.

10. Receiver according to claim 8, characterised in that it includes an automatic power control (ATPC) and means for instructing said automatic power control so that, if there it is a difference in power smaller than predetermined value, it will increase the power of transmission accordingly.

11. Receiver according to any of the claims 8-10, characterised in that said at least two additional values of power are obtained for areas that are equidistant from the optical axis.

12. Receiver according to claim 11, characterised in that said areas equidistant from the optical axis are four and are arranged in a cross or X-shaped configuration.

13. Receiver according to claim 12, characterised in that said processing means calculate a first difference in power (ΔX) along a first axis (X) that connects two first areas (F_{-X}, F_{+X}) and intersects the optical axis and a second difference in

power (ΔY) along a second axis (Y) that connects two second areas (F_{-Y}, F_{+Y}) and intersects the optical axis.